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Vampire Bats Prey on Latin America's Cattle

By David F. Belnap
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BUENOS AIRES—As Vasco Nunez de Balboa struggled across the Isthmus of Panama to discover the Pacific Ocean 455 years ago, his party was attacked by bats which seemed to suck the blood of the men and horses.

When some of the animals and men appeared to grow weak and then die, they were thought to be victims of progressive debility brought on by loss of blood.

In reality, the "weakness" was probably the ascending paralysis which precedes death from paralytic rabies, a disease carried by the bats, according to Dr. Aurelio Malaga Alza of Lima, Peru.

Rabies spread by these bats, later named vampire bats after the bloodsucking ghosts of Slavonic legend, today pose a serious threat to the livestock industry of nearly all of Latin America.

Dr. Malaga Alba, consultant to the School of Veterinary Medicine at Peru's San Marcos University and an authority on vampire bat rabies, estimates one million head of cattle perish each year in Latin America from the disease.

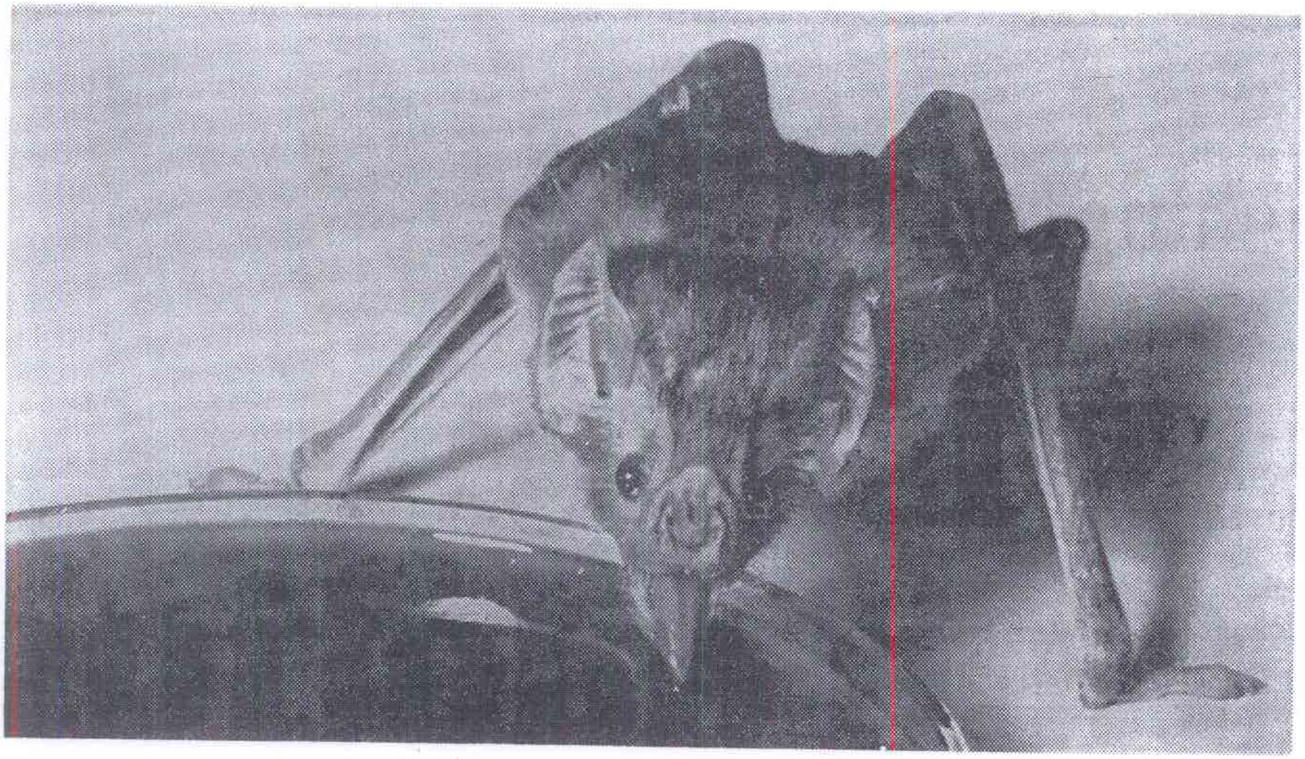
The United Nations Food and Agricultural Organization estimates the disease causes annual direct and indirect losses in Latin America totaling $350 million. This includes loss of meat, milk, hides, and related products as well as the effects of malnutrition.

In a recent report, Dr. James H. Steele, chief of the Veterinary Public Health Section of the National Communicable Disease Center, Atlanta, Ga., said the vampire bats of tropical America "are perhaps the most important reservoirs of rabies in the Americas" and added:

"This disease must be considered the most serious problem of animal health confronting Latin America today."

The FAO considers the disease so serious a threat to nutrition throughout large underdeveloped portions of Latin America that the United Nations is putting up most of the money for a four-year research program recently begun in Mexico to discover ways to protect the livestock industry from the scourge.

Similar research is under way at the Pan American Zoonoses Center, Buenos Aires, where investigation of all rabies problems is a continuing project. The center, a



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With tongue vibrating like a tuning fork, a vampire bat laps cattle blood at a hospital in Trinidad. The vampire does not suck blood, but laps it from wounds in warm-blooded animals inflicted by its razor-sharp incisors.

dependency of the Pan American Health Organization which is the regional office of the World Health Organization, is assisted by a three-man team on loan from the U.S. Public Health Service.

Native to Latin America, vampire bats inhabit a vast zone beginning 10 miles south of the U.S. border in the state of Nuevo Leon, Mexico, and extending southward to points 200 to 300 miles north and northwest of Buenos Aires in Uruguay and Cordoba Province, Argentina.

The animal is found in every Central and South American country and on the island of Trinidad in the Caribbean. Outbreaks of rabies among vampire bat colonies have been officially reported from every one of these countries except Peru and Chile, although two cases of vampires with rabies were recently reported in Peru and are awaiting scientific confirmation.

It is considered unlikely this species of bat will ever spread northward into the United States or southward into the rich cattle raising pampas of central Argentina because it doesn't thrive in a climate where the temperature falls below 50 degrees Fahrenheit in winter.

The vampire bat seeks food by sight and smell, mostly at night, and lives exclusively on the blood of warm-blooded animals and occasionally large birds. As a source of food, it seems to prefer domestic cattle, if they are available, rather than the wild animals which are its more natural prey. With the expansion of cattle raising in tropical Latin America, vampire bat populations have increased correspondingly, nurtured by this added food supply.

Rabies among vampire bats appear in cycles ranging from three to five years. Not all bat colonies in a given geographic region are stricken simultaneously, nor are all bats of an individual colony infected at the same time.

Local outbreaks among cattle, therefore, tend to show a spotty pattern; heavy losses will occur in one herd, while a neighboring herd will have not a case.

In high risk areas, however, losses can be devastating. In certain parts of Brazil, livestock losses of up to 100 per cent have occurred, according to the FAO, forcing suspension of cattle raising in some regions and abandonment in others.

FAO reports that in high risk regions of Mexico, mortality among cattle and horses "is conservatively estimated at 30 per cent" and adds: "Reports are available of 90 per cent mortality in individual herds and a consequent loss of valuable breeding animals acclimatized to the region."

Vampire bats rarely attack man unless they are desperately hungry or in the "furious" stage of rabies infection. They prefer a sleeping victim, and man usually sleeps under shelter. The worst recorded outbreaks of rabies in humans positively blamable on vampire bats occured in Trinidad, where 89 persons died of the disease during a six-year period ending in 1935, and in Jujuy province, Argentina, where five persons died in 1965.

A vampire bat has an uncanny knack of knowing when its prey is asleep. Its usual procedure is to alight near a sleeping animal, walk to it, and with its two special incisor teeth, inflict a tiny, crater-like wound. As the wound fills with blood, the bat draws it up by forming a tube with its long, well-developed tongue. An adult vampire consumes 15 pints of blood a year.

Most vampire bats suffering from rabies, like all other infected mammals, inevitably die of the disease. But some vampires, unlike any other mammal, apparently come very near to being true "carriers" of the disease, meaning they are capable of infecting others while exhibiting no visible symptoms themselves.

When a disease has what scientists call a vector—such as the mosquito with malaria and yellow fever—measures are directed toward control of the vector. This has so far proven extremely difficult in the case of vampire bat rabies because of the bats' nocturnal habits and inaccessible roosts.

Trinidad has Latin America's best program of vampire bat control, but over-all results have been disappointing. The cost of the program is about $20 for each bat killed, and about the same number of bats are killed annually without any evidence that the total vampire population is being reduced from year to year.

The FAO-initiated research project underway in Mexico will investigate and test every control possibility. These include chemical attractants, repellants, poisons, sterilization by radioactivity, mechanical traps and nets, ultrasonic sound attractants and repellants, biological control through epidemics of diseases fatal only to vampires, and the propagation of natural predators.

Until the bats can be controlled, protection for the livestock industry in tropical Latin America must consist mainly of mass immunization of cattle. Up to now, all vaccines used have been too expensive and have conferred only limited protection—less than a year in most cases, according to Dr. Malaga Alba.

Recently, however, Canadian biological researchers have produced a modified live-virus vaccine that confers a strong immunity to cattle. Large-scale field experiments with this vaccine have been conducted in Bolivia, Venezuela and Argentina. Results have been highly encouraging.